

**SHIFT AND RECODE MULTIPLIER**ABSTRACT OF THE DISCLOSURE

A method and apparatus are provided for multiplying a multiplicand by a multiplier. The method and apparatus generate a plurality of partial products. Each partial product has a plurality of bits having respective binary weights, wherein each bit can have a first or second logic state. A first set of multiple-bit columns is formed from bits of the plurality of partial products, wherein the bits in each column of the first set have the same binary weight. Each multiple-bit column in the first set is encoded into a respective modified partial product, which represents a number of bits in the column having the first logic state. This process can be repeated until the number of partial products is reduces to a desired number.